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| 09/680,265 | 10/05/2000 | Frank Brouwer | 2380-229 | 8852 |

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| EXAMINER |
|---|
| MEW, KEVIN D |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2664 | |

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | Applicant(s) |
| --- | --- | --- |
| **Office Action Summary** | 09/680,265 | BROUWER, FRANK |
| | Examiner | Art Unit | |
| | Kevin Mew | 2664 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on _8/6/2004_.

2a)☒ This action is **FINAL**.        2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) _2-16,18-32 and 34-48_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _2-4,8-11,13-16,18-20,24-27,29-32,34-36,40-43 and 45-48_ is/are rejected.

7)☒ Claim(s) _5-7, 12, 21-23, 28, 37-39, 44_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All  b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _7_.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

*Final Action*

*Response to Amendment*

1.    Applicant's arguments filed on August 6, 2004 regarding claims 2-11, 13-16, 18-27, 29-

32, 34-43, 45-48 have been fully considered and claims 2-16, 18-32, 34-48 are currently

pending.  Claims 1, 17, and 33 have been cancelled by the applicant.


2.    Acknowledgement is made of the amended claims 5-7, 21-23, 37-39 regarding the

rejections of 35 U.S.C. 112, second paragraph described in the previous Office Action.  The

rejections of claims 5-7, 21-23, 37-39 under 35 U.S.C. 112, second paragraph are now

withdrawn.


*Claim Objections*

3.    Claims 6-7, 22-23, 38-39 are objected to because of the following informalities:

the symbols "N" and "$N_{sf}$" have not been defined in claims 6, 22, and 38.

the symbol "$W_{sf}$" has been defined but is not being used in the equation of claims 6, 22,

and 38.

the symbol "$Cap_{new}$" has not been defined in claims 7, 23, and 39 and it is unclear as to

what the term "load" refers to in claims 7, 23, and 39.

Appropriate correction is required.

## *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.      Claims 2-4, 8-11, 16, 18-20, 24-27, 32, 34-36, 40-43 & 48 are rejected under 35 U.S.C.

103(a) as being unpatentable over Johansson (WO 00/49816) in view of Nadgauda et al. (USP

6,011,800).

Regarding claims 2, 18, 34, Johansson discloses a radio access network (CDMA System,

see page 2, line 5) for comprising a base station node (Base Transceiver Station BTS, see page 2,

line 6) to perform the method of operating a radio access network (see Fig. 2) which determines

a number of connections for each of plural spreading factors that can be added to the base station

node (allocating a different number of codes for each spreading factor in a BTS, see page 2, lines

7-22 and Fig. 1; spreading factors SF=1, SF=2, SF=4, SF=8, etc.), and which sends to a radio

network controller (RNC) node (see page 5, lines 1-4) a capacity indication (the number of codes

to be allowed to a spreading factor) including a capacity value based on the determined number

of connections (determining a number of codes to be allocated to each spreading factor, see page

2, lines 4-22), wherein the capacity indication includes a vacancy capacity value for each of

plural spreading factors (a number of codes to be allowed for each spreading factor, see page 2,

lines 4-22 and Fig. 1; note that the number of codes to allowed for each spreading factor is

interpreted as a vacancy capacity value).

Johansson does not explicitly show each code will correspond to a capacity resource. However, Nadgauda discloses a CDMA system in which the resource size is determined by the number of codes allocated to a communication unit (see col. 2, lines 66-67 and col. 3, lines 1-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the code allocation for each spreading factor in a CDMA system of Johansson with the teaching of the determining the resource size by the number of codes allocated to a communication unit such that the code allocation method of Johansson is used to determine the resource size. The motivation to do so is to allow different codes to support different resource sizes because it is desirable to support a plurality of resource sizes so that the capabilities and cost of the subscriber units may be scaled in accordance with the throughput requirements of the user.

Regarding claims 3, 19, 35, Johansson discloses the apparatus of claims 2, 18, 34, respectively, wherein the capacity indication (the number of codes to be allowed to a spreading factor) includes a vacancy capacity value (determining a number of codes to be allocated to each spreading factor) for each of plural spreading factors (see page 2, lines 4-22 and Fig. 1; note that the number of codes to allowed for each spreading factor is interpreted as a vacancy capacity value).

Regarding claim 4, 20, 36, Johansson discloses a radio access network (CDMA System, see page 2, line 5) for comprising a base station node (Base Transceiver Station BTS, see page 2, line 6) to perform the method of operating a radio access network (see Fig. 2) which determines

a number of connections for each of plural spreading factors that can be added to the base station

node (allocating a different number of codes for each spreading factor in a BTS, see page 2, lines

7-22 and Fig. 1; spreading factors SF=1, SF=2, SF=4, SF=8, etc.), and which sends to a radio

network controller (RNC) node (see page 5, lines 1-4) a capacity indication (the number of codes

to be allowed to a spreading factor) including a capacity value based on the determined number

of connections (determining a number of codes to be allocated to each spreading factor, see page

2, lines 4-22). Johan further discloses the capacity indication includes a vacancy capacity value

for each of plural spreading factors (a number of codes to be allowed for each spreading factor,

see page 2, lines 4-22 and Fig. 1; note that the number of codes to allowed for each spreading

factor is interpreted as a vacancy capacity value).

Johansson does not explicitly show the capacity indication is a total capacity value

calculated using a vacancy value for each of plural spreading factors.

However, Nadgauda discloses a CDMA system in which the resource size is determined

by the number of codes allocated to a communication unit (see col. 2, lines 66-67 and col. 3,

lines 1-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to combine the code allocation for each spreading factor in a CDMA

system of Johansson with the teaching of the determining the resource size by the number of

codes allocated to a communication unit such that the total resource size value is the sum of all

the resource sizes of all the communication units wherein the resource size of each

communication unit is determined by the number of codes being allocated to it. The motivation

to do so is to report a total calculated resource size value based on a combination of different

resource sizes so that all of the resource sizes to be supported by the communication system is

specified beforehand for the purpose of planning and designing the communication system.


Regarding claims 8, 24, 40, Johansson discloses the apparatus of claims 2, 18, 34,

respectively, wherein the base station tracks usage of base station resources for determining the

number of connections that can be added to the base station node (see page 2, lines 4-22).


Regarding claims 9, 25, 41, Johansson discloses the apparatus of claims 2, 18, 34,

respectively, wherein the capacity indication reports the determined number for a particular

spreading factor utilized at the base station node (see page 2, lines 4-37).


Regarding claims 10, 26, 42, Johansson and Nadgauda disclose all the aspects of the

claimed invention set forth in the rejection of claims 2, 18, 34, respectively. Johansson further

discloses the apparatus of claims 2, 18, 34, respectively, wherein the capacity indication reports

the determined number separately for downlink transmissions relative to the base station node

(see page 2, lines 4-22). Johansson does not explicitly show the capacity indication reports the

determined number separately for uplink transmissions relative to the base station node.

However, Nadgauda discloses resource size determination is performed by reporting the resource

size requirement to the communication system (uplink, see col. 3, lines 42-59). Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was made to

combine the resource size determination by spreading codes of Johansson and Nadagauda with

the teaching of Nadgauda such that the capacity indication reports the resource size in the uplink

direction relative to the base station. The motivation to do so is to provide an efficient resource

management in a communication system supporting a plurality of mobile stations that may have

varying resource size requirements.

Regarding claims 11, 27, 43, Johansson and Nadgauda disclose all the aspects of the

claimed invention set forth in the rejection of claims 2, 18, 34, respectively. Johansson further

discloses wherein the capacity indication reports the determined number based on a combination

of free connections for each of plural spreading factors (see page 2, lines 21-22), and using

consumption laws appropriate for each of the spreading factors (see page 2, lines 21-22).

Regarding claims 16, 32, 48, Johansson and Nadgauda discloses all the aspects of the

claimed invention set forth in the rejection of claims 2, 18, 34, respectively. Johansson further

discloses the base station node has plural devices (the base transceiver station is wirelessly

connected to the mobile stations, see Fig. 2), except fails to show the capacity determination is

based on a number of free resources per device. However, Nadgauda discloses performing

resource determination based on the available resources per device (see col. 7, lines 45-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine the resource size determination by spreading codes of Johansson and

Nadgauda with the teaching determining the available resource sizes of the communication units

in the system. The motivation to do so is to maximize the total number of available resources by

keeping the system from wasting excess capability and denying service to communication units

where there are sufficient resources to support them.

5.      Claims 13-15, 29-31, 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Johansson in view of Nadgauda et al., and in further view of the admitted prior art, 3G TS

25.433 V3.1.0, Technical 3rd Generation Partnership Project; Specification Group Radio Access

Network; UTRAN Iub Interface NBAP Signalling (Release 1999).

Regarding claims 13, 29, 45, Johansson and Nadgauda disclose all the aspects of the

claimed invention set forth in the rejection of claims 2, 18, 34, respectively, except fail to

explicitly show the capacity indication is included in a 3GPP "Resource Status Indication"

message. However, the admitted prior art, the 3GPP technical specification 3G TS 25.433

V3.1.0 discloses that Node B reports resource capabilities by sending a Resource Status

Indication message to the CRNC (see section 8.2.15.2, Fig. 21). Therefore, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to combine the

resource size determination by spreading codes of Johansson and Nadagauda with the 3GPP

technical specification 3G TS 25.433 V3.1.0 such that the resource size is indicated in a 3GPP

"Resource Status Indication" message. The motivation to do so is to conform with the 3GPP

standard of using the Resource Status Indication message when reporting resource sizes to the

base station controller.


Regarding claims 14-15, 30-31, 46-47, Johansson and Nadgauda disclose all the aspects

of the claimed invention set forth in the rejection of claims 2, 18, 34, respectively, except fail to

disclose the capacity indication is included in a message which is distinct from a 3GPP

"Resource Status Indication" message. However, the admitted prior art, the 3GPP technical

specification 3G TS 25.433 V3.1.0 discloses that Audit Response message (see section 9.1.16)

can be used to indicate resource capacity. Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to combine the resource size

determination by spreading codes of Johansson and Nadagauda with the teaching of the 3GPP

technical specification 3G TS 25.433 V3.1.0 such that the resource size is indicated in an AUDIT

Response message. The motivation to do so is to conform with the 3GPP standard of using the

another message other than the 3GPP Resource Indication Status message when reporting

resource sizes to the base station controller.

### *Response to Arguments*

6.      Applicant's arguments with respect to claims 2-4, 13-16, 18-20, 24-27, 29-32, 34-36, 40-

43, 45-48 have been considered but are moot in view of the new ground(s) of rejection.

### *Allowable Subject Matter*

7.      Claims 5, 12, 21, 28, 37, 44 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

Claims 6, 22, 38 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims, and the claim objections described above are

overcome.

Claims 7, 23, 39 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims, and the claim objections described above are

overcome.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 5, 21, 37, the capacity value us determined at least in part using the following

expression:

$$F = \sum_{sf}^{all\ SF} W_{sf} \bullet A_{sf} \bullet C_{sf}$$

wherein:

F = free resources;

$W_{sf}$ = a weighting factor for spreading factor sf;

$A_{sf}$ = number of connections that can be added with spreading factor sf;

$C_{sf}$ = consumption for spreading factor sf according to reported consumption law.

Claims 12, 28 & 44, in lines 1-2 respectively, the apparatus of claims 11, 27 & 43,

respectively, wherein the combination is a weighted combination.

## *Conclusion*

8.      Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

9.      The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure with respect to resource capacity reporting to a control node of a radio access network.

US Publication 2002/0049062 to Petersen et al.

US Publication 2003/0189900 to Herrmann et al.

US Patent 6,738,634 to Shin

10.     Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The

examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KDM
Art Unit 2664